

Reteaching 4-2

An *exponent* tells how many times a number is used as a factor.

$3 \times 3 \times 3 \times 3$ shows the number 3 is used as a factor 4 times.

$3 \times 3 \times 3 \times 3$ can be written 3^4 .

In 3^4 , 3 is the *base* and 4 is the exponent.

Read 3^4 as "three to the fourth power."

- To *simplify* a power, first write it as a product.

$$2^5 = 2 \times 2 \times 2 \times 2 \times 2 = 32$$

- When you simplify expressions with exponents, do all operations inside parentheses first. Then simplify the powers.

$$\begin{aligned} \text{Example: } 30 - (2 + 3)^2 &= 30 - 5^2 \\ &= 30 - 25 \\ &= 5 \end{aligned}$$

Name the base and the exponent.

1. 3^6

base _____

exponent _____

2. 6^2

base _____

exponent _____

3. 8^4

base _____

exponent _____

Write each expression using an exponent. Name the base and the exponent.

4. $9 \times 9 \times 9$

5. $6 \times 6 \times 6 \times 6$

6. $1 \times 1 \times 1 \times 1 \times 1$

Simplify each expression.

7. 6^2

8. 3^5

9. 10^4

10. $4^2 + 5^2$

11. $2 \times 6 - 2^3$

12. $6^2 + 4^2$

13. $5 + 5^2 - 2$

14. $24 \div 4 + 2^4$

15. $9 + (40 \div 2^3)$

16. $(4^2 + 4) \div 5$

17. $10 \times (30 - 5^2)$

18. $12 + 18 \div 3^2$

Practice 4-2

Exponents

Write each expression using exponents. Name the base and the exponent.

~~3 × 3 × 3 × 3~~

~~7 × 7 × 7 × 7 × 7~~

~~3 × 3 × 3~~

Simplify each expression.

~~8²~~

~~8⁴~~

~~7²~~

10. $156 + (256 \div 8^2)$

~~3³~~

~~4³~~

13. $(3 \times 4)^2$

14. $60 \div (8 + 7) + 11$

15. $2^2 \times 5^2 + 106$

16. $4 + 7 \times 2^3$

17. $60 + (5 \times 4^3) + 2^2 \times 55$

~~3³~~

19. $7^2 - 7 \times 2$

20. $48 \div 4 \times 5 - 2 \times 5$

21. $(4^2 - 4) \times 10$

22. $(4 + 3) \times (2 + 1)$